

IN THE CLAIMS

1. (Currently amended) A connector having a connecting face, comprising:
conductors connectable through the connecting face, ~~the conductors including upper and lower surfaces; and~~
a housing substantially enclosing the conductors and including first, second and third sides, the first side coinciding with the connecting face, the second and third sides including openings on opposite sides of the housing that together form a passageway extending completely through the connector from the second side to the third side for promoting air flow across ~~the upper and lower surfaces of the conductors and through the housing; and~~
an air flow control device configured to direct air through holes in a circuit board and into one of the housing openings.

2. (Currently amended) A connector according to claim 1 wherein the air flows over a majority of a surface area of the conductors ~~including a shroud substantially enclosing the housing.~~

3. (Currently amended) A connector according to claim 1 wherein the housing is attached over the circuit board ~~including openings on opposite sides of the housing for passing air through a first one of the openings, over the upper and lower surfaces of the conductors in parallel planar passageways, and out a second one of the openings.~~

4. (Withdrawn) A connector according to claim 1 including an air flow control device configured to direct air through openings in a circuit board and into one of the housing openings.

5. (Currently Amended) A connector according to claim-4 1 wherein the air flow control device includes an air intake vent configured to direct air from underneath-a the circuit board up through vias electrically connected to-a the circuit board and into one of the housing openings.

6. (Previously presented) A connector according to claim 5 including conductor pins that are inserted in some of the vias, wherein the air flow is directed through at least some of the vias not including conductor pins inserted therein.

7. (Currently amended) A connector according to claim-4 1 wherein the air flow control device includes an air intake vent located below the housing and below the circuit board.

8. (Previously presented) A connector according to claim 7 including an exhaust vent configured to vent air in a direction offset and substantially parallel to the air directed towards the intake vent, wherein the intake and exhaust vents are located in a shroud substantially enclosing the housing.

9. (Currently Amended) A connector according to claim-4 1 including vias electrically connected to a power plane on-a ~~printed~~ the circuit board, the vias located inside the air flow control device for directing air from underneath the circuit board up through the vias and across the conductors in the connector.

10. (Previously presented) A heat removal system, comprising:

a circuit board power connector including electrical contacts for inserting into a first set of contact holes electrically connected to a circuit board; and

a device attached over the circuit board power connector for directing air from underneath the circuit board up through a second set of contact holes, through the power connector and out an output vent for directing heat away from the power connector.

11. (Previously presented) A heat removal system according to claim 10 including an air intake vent located on an underside of the printed circuit board for directing air up through the second set of contact holes in the printed circuit board.

12. (Previously presented) A heat removal system, comprising:

a device attached over a circuit board power connector and including an output vent for directing heat away from the power connector;

an air intake vent located on an underside of the printed circuit board for directing air up through holes in the printed circuit board and into the device; and

a hinge that couples the device with the air intake vent.

13. (Canceled)

14. (Previously presented) A heat removal system according to claim 10 including openings in a power connector, the device directing the air into a first one of the openings, through parallel passageways formed between upper and lower surfaces of conductors housed in the connector, out a second one of the openings, and out the output vent.

15. (Previously presented) A heat removal system according to claim 14 wherein the air directed out the output vent is substantially parallel to the air directed through the conductors.

16. (Previously presented) A heat removal system according to claim 10 wherein the air directed out the output vent is substantially perpendicular to the air directed through the second set of contact holes.

17. (Previously presented) An air flow control device for cooling a circuit board power connector, comprising:

- a unit for containing a circuit board power connector;
- an air intake vent for directing air into the unit;
- an air outtake vent for directing the air out of the unit; and
- conductors arranged to direct the air through the power connector in channels exposing a majority of a surface area of the conductors.

18. (Previously presented) An air flow control device according to claim 17 wherein the air intake vent is located on a side of the unit opposite that of the air outtake vent.

19. (Previously presented) An air flow control device according to claim 18 wherein the air intake vent is located below the conductors.

20. (Previously presented) An air flow control device according to claim 17 including conductor connections for inserting into vias electrically coupled to a circuit board power plane wherein vias not including conductor connections inserted therein provide air flow into the unit.

21. (Currently amended) A method for removing heat, comprising:
directing an air flow from beneath a circuit board through a first set of electrically coupled contact holes located in the circuit board; ~~and~~
circulating the air past electrical contacts of conductors inserted in a second set of electrically coupled contact holes located in the circuit board; and
directing the air into a housing and through multiple passageways of the conductors.

22. (Previously presented) A method according to claim 24 including exhausting the air in a direction substantially parallel to the air circulated through the conductors.

23. (Currently amended) A method according to claim ~~22~~ 24 wherein the air circulated through the conductors is substantially perpendicular to the air flow directed through the contact holes.

24. (Currently amended) A method according to claim 21 including circulating the air through parallel planar passageways formed between ~~upper and lower surfaces of the~~
conductors located in ~~a power device~~ the housing.

25. (Previously presented) A connector, comprising:
conductors;

a housing containing the conductors; and

an air flow control device substantially enclosing the housing including an air intake vent on one side for promoting air flow through a circuit board into the housing and across parallel passageways exposing upper and lower surfaces of the conductors.

26. (Previously presented) A connector according to claim 25 including an exhaust vent located on another side of the air flow control device for exhausting the air flow in a direction parallel to the passageways.

27. (Previously presented) A connector according to claim 26 wherein the passageways are formed from upper and lower surfaces of the conductors.

28. (Previously presented) A connector according to claim 25 including vias connected to the circuit board, wherein conductor contact points are inserted in some of the vias, and wherein other vias allow air flow through the circuit board.

29. (Currently amended) A connector according to claim 1 including parallel airways formed between the upper and lower surfaces of the conductors for channeling the air flow in a direction substantially perpendicular to the holes in the circuit board.

30. (Currently amended) A connector according to claim 29 wherein at least some of the holes are electrically connected to the circuit board ~~the airways extend through the housing.~~

31. (Currently amended) A connector according to claim ~~30~~ 29 wherein the airways expose a majority of a surface area of the conductors.

32. (Currently amended) The connector according to claim 1 wherein the conductors are arranged as vertically stacked blades spaced apart by horizontal channels extending from the ~~first~~ second side of the housing to the ~~second~~ third side of the housing, the ~~first and second~~ openings allowing air to pass in through the opening on the ~~first~~ second side of the housing, through the horizontal channels over ~~both a top and bottom~~ a majority of a surface area of the vertically stacked conductor blades, and pass out the opening in the ~~second~~ third side of the housing.